MANAGEMENT OF EXTRA ORAL SINUS USING SHOE LACE TECHNIQUE

INTRODUCTION

The term sinus tract "refers to a tract leading from an enclosed area of inflammation to an epithelial surface" (An Annotated Glossary of Terms in Endodontics). It also states that the term dental fistula "should be discouraged, and the more proper term sinus tract should be used." In 1961, Bender and Seltzer reported that they found sinus tracts to be lined with granulation tissue not epithelium. (1)

When an acute periapical abscess forms, it will drain along a path of least resistance. The odontogenic abscess may spread to deeper tissues causing fascial space infection or it may establish an intraoral or extraoral drainage in the form of a sinus tract. Intraoral or extraoral sinus-tract opening depends on the location of the perforation in the cortical plate by the inflammatory process and its relationship to facial-muscle attachments. After formation of a sinus tract, the inflammation at the apex of the root may persist for a long period of time because of the drainage through the sinus tract, a chronic abscess can remain asymptomatic for extended periods of time. If there is a closure of the sinus tract, then the chronic abscess may become symptomatic. (2)

Sinus tracts on the oral mucosa adjacent to teeth usually disappear spontaneously with elimination of the causative factor. Although sinus tracts of pulpal origin are common, they are seldom of periodontal origin. (3)

Cutaneous sinus tracts of dental origin have been well documented in the medical literature (Lewin-Epstein et al. 1978; Kabran 1980; Spear et al. 1983; Cioffi et al. 1986; Held et al. 1989; Hodges et al. 1989; Cohen & Eliezri 1990) and the dental literature (Bernick & Jensen 1969; Strader & Seda 1971; Stratis & Stratigos 1973; Braun & Lehman 1981; Sharma & Chauhan 1985; McWalter et al. 1988; Maple & Eichel 1993; Caliskan et al. 1995). (4,5,6,7,8)

However, these lesions continue to be a diagnostic dilemma. A review of several reported cases reveals that patients have had multiple surgical excisions, radiotherapy, multiple biopsies, and multiple antibiotic regimens, all of which have failed, with recurrence of the cutaneous sinus tract, as the primary etiology was dental that was never correctly diagnosed or addressed. (10)

The present case report discusses an extraoral sinus tract which was cutaneous in nature whose early and prompt diagnosis led to its timely treatment by endodontic therapy.

CASE REPORT:

A 30 year old male patient reported to the Department Of Conservative Dentistry and Endodontics with chief complaint of pus discharge around the submental region associated with mild pain since last 2 weeks.

Detailed clinical examination revealed patient had grossly carious lower anterior teeth (31, 32, 41, 42). He also presented with deep bite. Extra oral examination revealed a cutaneous sinus tract near the chin. Radiographic examination revealed that tooth 41 was the cause. Vitality of the teeth were checked using electric pulp tester and mandibular right central and lateral incisors were found to be non vital.

Root canal treatment of the involved teeth and management of the extraoral sinus tract was planned using “Shoe Lace Technique”. Shoe Lace Technique involved managing the sinus where a gauge piece soaked in betadiene was inserted extraorally to disrupt the epithelium of sinus tract to make a patency for pus drainage.

Under local anesthesia flap reflection was performed and the root was exposed. The granulation tissue was removed using curettes (API). Shoe Lace Technique was performed to disrupt the epithelium of sinus tract The flap was repositioned and sutured using s品格 suture technique. Patient reported back asymptomatic after 3 months.

DISCUSSION

Cutaneous sinus tracts typically present as fixed, nontender, erythematous, nodulocystic lesions on the skin of the lower face. The patient is usually unable to recall an acute or painful onset and the lesion is seldom accompanied by symptoms in the oral cavity. (4) Once the infection from the offending tooth has perforated the periosteum, the tooth may become asymptomatic. Digital palpation of the involved area frequently reveals a "cord" of tissue connecting the painless skin lesion to the involved maxilla or mandible. During palpation, an attempt should be made to 'milk' the sinus tract; production of a purulent discharge confirms the presence of a tract (Cohen & Eliezri 1990). (9) Often, both the nodule and perilesional skin are slightly retracted below the level of the surrounding skin surface. (7). The majority of dental sinus tracts develop intraorally. When an extraoral dental sinus tract occurs, it most often develops in close proximity to the offending tooth (8).

Approximately 80% of reported cases of cutaneous sinus tracts of odontogenic origin are associated with mandibular teeth. Therefore, the most common areas of involvement are the chin and submental regions (2). Tracts in the mandibular and submandibular regions are most often associated with mandibular molars (8). Laskin has described the propagation of odontogenic infection as being influenced by the relationship of the root apices to the alveolar process and by the arrangement of the muscles and fascia of the face and neck. He also emphasized that these structures represent only relative barriers and that systemic reaction of the patient still governs the extent of spread (9).

Evaluation of a cutaneous sinus tract must begin...
with a thorough history and awareness that any cutaneous lesion of the face and neck could be of dental origin (Lewin-Epstein et al. 1978; Cioffi et al. 1986; Cohen & Eliezri 1990). If the sinus tract is patent, a lacrimal probe or a gutta-percha cone can be used to trace its track from the cutaneous orifice to the point of origin, which is usually a nonvital tooth (Sakimoto & Stratigos 1973; Mitchell 1994).(8)

A radiograph is then exposed with the probe in situ, pointing to the origin of the primary pathosis. Oral examination may reveal one or more severely decayed teeth or a healthy looking tooth with an intact crown. Pulpal and periradicular diagnostic testing should be performed on the suspect tooth and adjacent teeth. More than one tooth may be pulparly involved and associated with the cutaneous odontogenic sinus tract.

Cutaneous sinuses have a wide range of incidence. The youngest individual reported to have a cutaneous odontogenic sinus tract was a boy aged 10 months (Cohen & Eliezri 1990) and the oldest was 110 years of age (Cioffi et al. 1986). The cutaneous lesion may develop as early as a few weeks (Spear et al. 1983) or as late as 30 years (Cohen & Eliezri 1990). Most patients are unaware of an associated dental problem (Cioffi et al. 1986; Hodges et al. 1989; Caliskan et al. 1995), thus delaying the correct diagnosis of the cutaneous lesion with its primary odontogenic origin. (10) These patients are usually healthy. The sinus tract prevents swelling or pain from pressure build-up because it provides drainage of the odontogenic primary site (McWalter et al. 1988). Thus, the draining sinus tract maintains a localized condition and prevents systemic involvement.

Treatment involves making a patent pathway for the pus to drain. Many methods have been propagated which range from periapically perforating the root of tooth during root canal treatment thus draining the pus through orthograde approach to creating an extraoral pathway for providing rapid relief to the patient in case of large sinuses. Shoe Lace Technique is one such method where the sinus is managed extraorally by inserting a gauge piece soaked in betadiene to make a patency for pus drainage.

REFERENCES